OPHTHALMOLOGY.

35. *Cardio-Thyroidean Exophthalmia.*—M. von Graefe has lately called attention to a symptom hitherto unnoticed in the above-named affection. This symptom presents itself from the first, and is characteristic and pathognomonic. It is the suspension of the sympathetic connection normally existing between the vertical rotation of the visual plain, and the movement of elevation and depression of the superior eyelid. In the normal state, the eyelid is seen to follow this movement, and to be elevated or depressed in proportion to the extent of the rotation of the eye. But in the case of this disease, the eyelid remains motionless, especially in the rotation of the eye downwards. This symptom is not observed in ordinary exophthalmia, as when the eye is protruded by an intra-orbital tumour. But it is constantly present in cardio-thyroidean exophthalmia. It is evident that this immobility of the muscle of the eyelid depends upon some interference with its nervous influence. Probably, this function of the muscle depends upon the filaments of the sympathetic supplied to some of its fibres, as pointed out by Müller; the portion of the muscles to which those filaments are supplied being employed in co-ordinating the movements of the eye with those of the eyelid. This symptom is important, because it presents itself at a very early period of the disease. Hence, the initial semeiology of cardio-thyroidean exophthalmia affords us two symptoms: oculo-palpebral ataxia and acceleration of the heart's action, independent of any organic disease. The condition of the thyroid gland, of the heart, of these muscular fibres of the eyelid supplied by the sympathetic—all tend to show that the sympathetic nerve is the chain by which they are linked together. This theory is strengthened by a recent discovery of von Bezold, that the heart's movements are accelerated through this ganglionic nervous chain. M. Remak has practically made use of this fact by subjecting the cervical portion of the sympathetic to galvanism in a case of spasmodic action of the heart. M. Remak, also, relates the case of a patient affected with facial paralysis of ganglionic origin; the paralysis being characterized by total muscular anæsthesia, as well as by muscular atrophy. The paralysis was attended by swelling of the superior cervical ganglion of the sympathetic, as well as by swelling and induration of the corresponding submaxillary gland. The patient was completely cured by the application of the uninterrupted electrical current.

These facts tend to show that exophthalmia is a nervous affection seated in the cervical portion of the sympathetic. The therapeutical remedy which is recommended as worthy of trial in such case is founded on physiological considerations. It is the application of the electrical current to the cervical sympathetic; the early and true condition of the disease being determined by the symptom pointed out by Graefe, and here detailed.—*British Medical Journal*, September 17, 1864.

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36. *Case of Extreme Squint cured, without Operation, by the Use of Prisms; with Clinical Remarks.*—The following case, related by Mr. Ernest Hart (*Lancet*, 1864), is interesting, as showing that certain cases of strabismus may be radically cured by the adaptation of optical means, without any operation. Mr. Hart observed in reference to it, that a careful study of the origin and nature of various forms of squint shows that the treatment must, to do justice to the patient, be almost as much optical as purely surgical; and there is a large proportion of cases in which merely optical means succeed perfectly, either in averting the formation of a permanent squint, in curing it when the proper glass is applied early, or in preventing relapse after operation.

J. C., aged twenty-seven, a sailor, of good general health, and had always possessed excellent sight. In May, 1863, he had a severe attack of rheumatic fever; various joints were attacked in succession, and he lay for nearly two months helpless in bed. Towards the end of the attack the eyes became affected: the light became painful to them; the eyeballs he describes as having become blood red, and acutely painful, the pain being severe over the brow, and darting through the head from the frontal region. The face was blistered by the abundant and acrid lachrymation. Thus there seems to have been an acute rheumatic ophthalmitis. He recovered well, and is not aware that there were any immediate traces left of the disease. He went a voyage to the Cape, and came home in satisfactory health; but in the subsequent voyage, in December, 1863, he became aware of a certain dimness and confusion in looking at objects, a difficulty in measuring distances, and in defining the outlines of things and persons before him. This came on, he thinks, quite suddenly; and in the course of the day he found that he had a decided convergent squint of the right eye, and that he had lost control over the movements of that eye. He consulted Mr. Hart in the middle of January last.

Mr. Hart found then a convergent squint, monolateral, of the right eye, permanent, and due to paralysis of the external rectus. The visual powers of the two eyes, tested separately, were very nearly equal. There was no dilatation or semi-dilatation of the right pupil; no drooping of the lid. The latitude of accommodation was equal to that of the left eye. The patient suffered greatly by the constant confusion arising from the double set of images which the incongruous eyes received. He was frequently unable to distinguish between the true image and its ghost, and, besides the giddiness and confusion thus occasioned, felt himself in danger in walking the streets.

Mr. Hart called the attention of the class especially to the case as one in which, from the positive and negative data above mentioned, the cause of the squint might be accurately determined. He referred it to insufficiency (paresis) of the right external rectus. The normal action of the other muscles of the eye and eyelid and of the iris, excluded cerebral causes; while the absence of far-sightedness or short-sightedness in any marked degree, and the healthy appearance of the internal fundus of the eye revealed by the ophthalmoscope, excluded dioptric or retinal disorder from the etiology of the case. The cause being thus determined, it remained to decide on the remedy. Mr. Hart pointed out that in this case the cause of the double images which occasioned so much distress was that incongruous portions of the two retinæ were, by virtue of the displacement of the axis of the strabismic eye, impressed with the respective images of each object seen. This might be remedied, then, by the use of a prismatically ground spectacle-glass, with the base turned in the direction opposite to that of the squint; for such a glass has the power of causing a deviation of rays of light incident on its base, which may thus be used to deflect the rays proceeding from objects looked at, so that they may, in the case of the squinting eye, be made to fall upon a part of the retina congruous to that which receives them in the normal eye, and thus binocular vision be restored. In fact, a prism may be used thus to fuse and destroy double images, just as, conversely, with healthy eyes, it is sometimes used in sport to produce them. Taking a series of prismatic glasses ground to scale, Mr. Hart then essayed them with this patient before the class. A glass ground to an angle of twelve degrees placed before the deviating eye so altered the direction of the images which it received as to fuse the double images into one. This, however, would only have removed the visual inconvenience without curing the squint. By now selecting a glass of ten degrees the images could be nearly fused, but not quite; and then the horror of double images, which is instinctive, caused an involuntary effort of the semi-paralytic and enfeebled rectus externus, which just succeeded in drawing the eye so far further outward as to compensate for the diminished angle of the prism, and fuse the double image. This, then, was the glass selected for the patient to wear; for by the aid of this glass the enfeebled muscle was, as it were, gymnastically exercised and strengthened. The fusion of images was not effected without an effort somewhat painful, and which could not long be sustained. Mr. Hart therefore directed the patient to employ the glass at intervals only during the day, gradually lengthening the period of exercise. In the course of seven days he had made considerable progress, could wear the glasses much longer at a time, and fuse the images more thoroughly and with less effort. He was then very anxious to rejoin his ship. Mr. Hart therefore furnished him with glasses of eight, six, and four degrees respectively, so that as the muscle became stronger a correspondingly greater effort might be required of it; the glasses fulfilling a true gymnastic as well as optical function, and acting just as dumb-bells of graduated weight, with appropriate exercise, may be made to act, in dealing with enfeebled muscles in other parts of the body. The patient was desired to communicate the result, or to show himself on his return. Recently the man presented himself quite cured. This cure was effected in the course of eight weeks. And in June he wrote to say that his eyes are now as good as ever, that the movements of the two are synchronous, and vision normal.

In another patient, now under treatment, in whom the squint was also monolateral and permanent, and on whom this method of treatment will be employed, the paresis of the abducens has followed on extreme debility after menorrhagia and lactation. Mr. Hart observed that it was essential to the good repute of this method of treatment that it should be employed with discrimination, and as the result of a careful diagnosis. It would be useless to attempt to cure by this means an alternating concomitant squint with hypermetropia, or a strabismus from active organic cerebral disease. But in every case of squint, the divergence of the eye must be regarded as a symptom, to be treated differently according to the nature of the various causes from which it arises. Sometimes a squint was the first indication of insidious meningitis in a child, of which he cited a remarkable case that he had lately seen in conjunction with Mr. Paul Jackson: then the ophthalmoscopic indications are of the highest value for the purposes of general treatment, and the squint must be disregarded. Very frequently a slight squint or confused image, due to insufficiency of the synergic action of the ocular muscles, was the first symptom of an impending acute or chronic cerebral disorder, and the ophthalmic surgeon had to yield place to the physician. In either of such cases to operate would be useless cruelty. Another set of cases were those of which the above-quoted is a fair type. Then came the large class, so admirably investigated by Donders and Von Graefe, in which squint is due to hypermetropia of the eye leading to excessive contraction of the internal rectus: in such cases, the degree of squint being measured, the division of the tendon, carefully adjusted, was followed by the best results. But to make strabotomy yield the almost uniformly successful results which might now be obtained from it, it was necessary to exclude all the cases which might be cured by other means, and also those which were incurable by any means. The application of a prismatic spectacle glass in the class of cases above defined was most successful, if carefully carried out and used for fit cases.

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37. *Atropized Gelatine.*—In our No. for July last, p. 250, we extracted from the *Lancet* of April last a notice of this article, which has led some of our readers to suppose that the credit of devising this very convenient preparation belonged to Mr. Ernest Hart, while in fact it seems justly due to Mr. J. F. STREATFEILD, the inventor of the atropine paper, who first published an account of it in the *British and Foreign Medico-Chirurgical Review* for January 1, 1864. After pointing out, in the journal just mentioned, some of the inconveniences which had attended the use of the atropine paper and his experiments to obtain a better article, he says: "I am now employing gelatine rolled out in sheets of the thickness of thin writing paper, and imbued with a definite proportion of sulphate of atropine or any other salt required. This retains the advantages of, and only requires the same mode of application as atropine paper, but *it need not be removed from the eye.* It is soon dissolved in the tears, and acts in every way well. The dose employed thus, it appears, is more quickly applied to the eye than when a similar dose has to be dissolved out of the meshes of tissue paper; and to this it is that I attribute the pain felt by some of my patients when I have used a large square of 'gelatine atropine paper.' They have not complained of pain when I have used a smaller bit (or dose), less than a whole square. I am thinking of having a check of small squares printed in green on the gelatine, to define the doses, and to make the transparent gelatine more readily visible *when about to be used,* for it need not be looked for afterwards. It is made by Mr. Squire, chemist to her majesty, 277 Oxford Street, London."